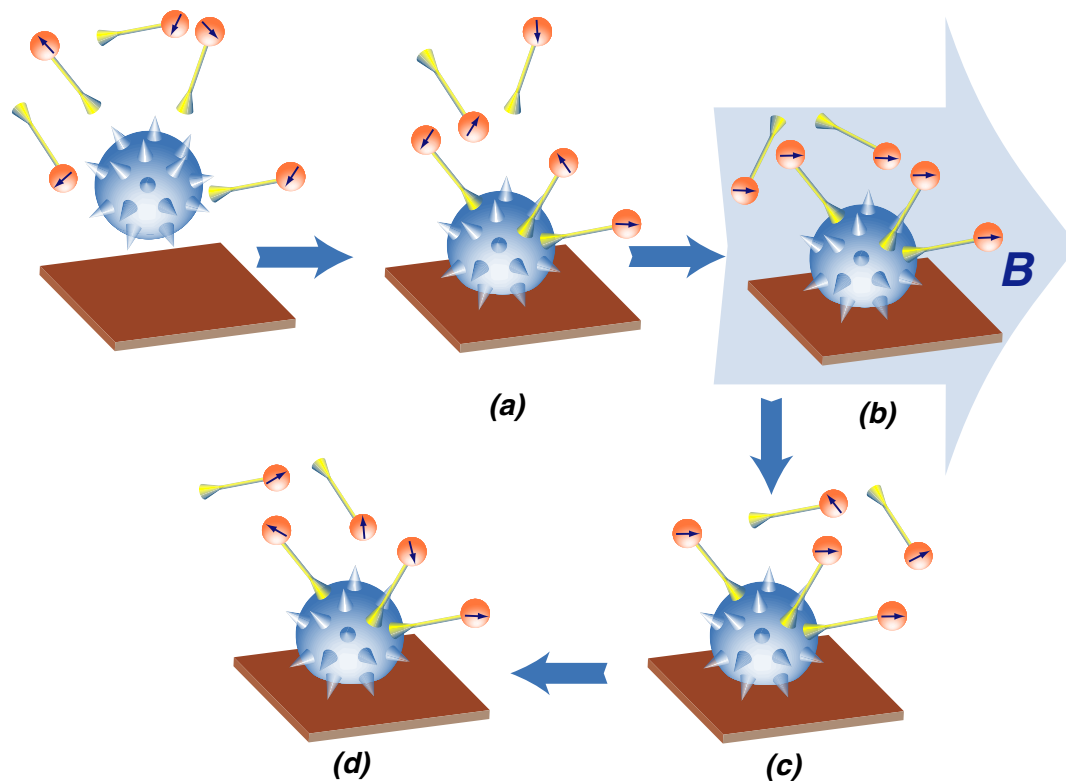
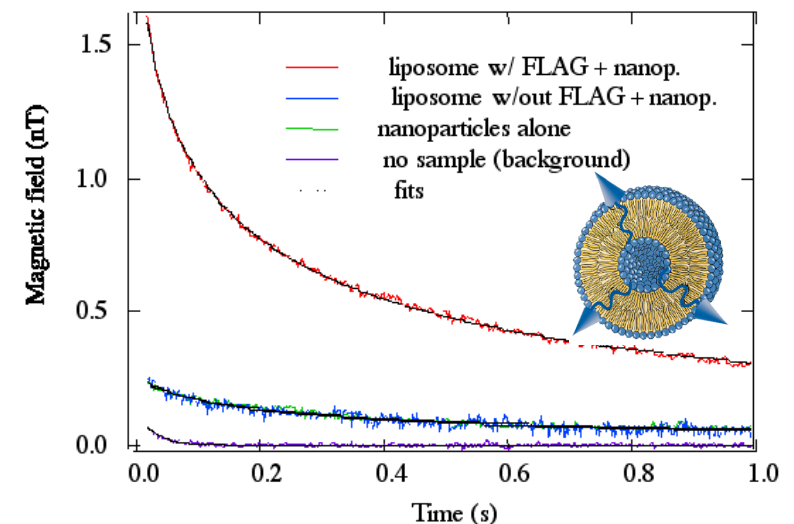


New, Ultrasensitive, SQUID-Based Magnetic Sensor



Sensor Design: (a) Targets (blue), if present, bind to a film in microscope well (brown), and to magnetic nanoparticles (red) with specific binding elements (yellow). (b) The magnetic moments of the particles are aligned in magnetic field after a one second pulse (B). (c) Brownian motion randomizes unbound particles immediately. (d) Slower randomization of bound particles is detected.



Magnetic particles bind protein (FLAG) on surface of model liposome target (inset) and give signal (red). Very small magnetic signals were measured with the nanoparticles alone (green) the liposome not carrying target protein (FLAG) (blue), or no sample (purple).